



UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/483,737 01/14/00 REICHERT

H GR-97-P-1903

EXAMINER

MMC2/1024

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P O Box 2480
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ART UNIT, A PAPER NUMBER

DATE MAILED:

10/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/483,737	Applicant(s) REICHERT ET AL.	
	Examiner Ahmed N Sefer	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2826

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I in Paper No. 9 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Komata et al (JP 2-15897).

Komata et al disclose a solder composition 13 containing two components with two metal-containing constituents including a constituent formed of precious metal or gold (as in claim 13) and another constituent or tin (as in claim 12) being consumed during soldering operation by one reacting and being dissolved by materials which are to be joined, and said solder composition has a hypereutectic concentration of the another constituent wherein said solder composition is Sn: 12-37 wt% and Au: balance (as in claim 14)

4. Claims 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Katz et al. US Patent No. 5,197,654.

Katz et al disclose a solder composition 23 containing two components with

Art Unit: 2826

two metal-containing constituents including a constituent formed of precious metal or gold (as in claim 13) and another constituent or tin (as in claim 12) being consumed during soldering operation by one reacting and being dissolved by materials which are to be joined, and said solder composition has a hypereutectic concentration of said another constituent.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inasaka US Patent No. 5,585,138 in view of Komata et al (JP 2-15897).

Inasaka discloses in fig. 7 a solder 7 containing two metal-containing constituents including a precious metal and a second constituent being consumed during a soldering operation by one of reacting and being dissolved in material which are to be joined; a substrate 9; and a semiconductor chip 8 secured to said substrate by one of alloying and brazing using solder.

Komata et al a precious metal and tin solder 13 and said solder has a hypereutectic concentration containing gold-tin (AuSn) with a hypereutectic Sn concentration.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to replace the Au-Sn eutectic alloy of Inasaka with a hypereutectic Sn concentration of Komata et al, since that would prevent deformation thereby enhancing the mechanical strength of a semiconductor chip connection to a substrate.

As for claim 16, Komata et al disclose a solder containing gold-tin (AuSn) with a hypereutectic Sn concentration.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Zakel et al US Patent No. 6,153,940 disclose a solder of inhomogeneous material.

b. Bitailou et al. (EP 0 747 954) disclose a solder with low melting point metal cap.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ahmed N Sefer whose telephone number is (703) 605-1227.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on (703) 308-6601.

ANS
October 17, 2001

Nathan Flynn
Primary Examiner

